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10/585,062

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Cunat Christophe

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NXP, B.V.

NXP INTELLECTUAL PROPERTY DEPARTMENT

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1109 MCKAY DRIVE

SAN JOSE, CA 95131

EXAMINER

MEROUAN, ABDERRAHIM

ART UNIT

PAPER NUMBER

2628

NOTIFICATION DATE

DELIVERY MODE

10/08/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

| | | | |
|------------------------------|---------------------------------------|--|--|
| Office Action Summary | Application No. 10/585,062 | Applicant(s) CHRISTOPHE ET AL. | |
| | Examiner ABDERRAHIM MEROUAN | Art Unit 2628 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 5, 7, 9, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lechat et al (U.S Patent 6999629 B1) hereinafter referred as Lechat, in view of Fowler et al (U.S Patent 6339428 B1) hereinafter referred as Fowler.

3. As per claim 1 Lechat discloses: A method of mapping an input image split into input triangles including texels onto (Lechat, Column 11, lines 21 to 25) an output image also split into corresponding output triangles including pixels (Lechat, Column 5, lines 21 to 25; and Column 10, lines 15 to 16), said method comprising the steps of: determining an inverse affine transform for transforming (Lechat, Column 3, line 61) an intermediate rectangle triangle into an input triangle (Lechat, Column 3, lines 61 to 64) determining a direct affine transform for transforming (Lechat, Column 4, lines 5 to 6) the intermediate rectangle triangle into an output triangle (Lechat, Column 4, lines 7 to 13) applying the inverse affine transform (Lechat, Column 3, line 61) to intermediate points of the intermediate rectangle triangle (Lechat, Column 3, lines 61 to

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64," A triangle is a set of points") so as to determine intermediate intensity values corresponding to said intermediate points on the basis of input intensity values of texels; (Lechat, Column 5, lines 25 to 29) and applying the direct affine transform (Lechat, Column 4, lines 5 to 6) to the intermediate points (Lechat, Column 4, lines 7 to 13, " A triangle is a set of points")so as to determine output intensity values of pixels on the basis of the intermediate intensity values (Lechat, Column 9, lines 24 to 37).

wherein the step of applying the inverse affine transform is adapted to transform(Lechat, Column 3, line 61) an intermediate point into an input transformed point the input triangle(Lechat, Column 4, lines 7 to 8, " A triangle is a set of points"),

Lechat doesn't disclose: determine, for said intermediate point, an intermediate intensity value based on a filtering operation of texels surrounding the input transformed point. However, Fowler discloses: determine, for said intermediate point, an intermediate intensity value based on a filtering operation of texels surrounding the input transformed point (Fowler, Column 3, lines 13 to 26).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement the teachings of Fowler into Lechat since Lechat did not suggest the filtering operation of texels, and Fowler suggests the beneficial use of the filtering operation of texels such to determine the pixel color value by determining the weighted average of the closest four textel instead of big number of textels.

4. As per claim 3, Lechat in view of Fowler discloses: wherein the filtering operation comprises a bilinear interpolation using four texels surrounding the input transformed point. (Fowler, Column 3, lines 13 to 30)

5. As per claim 5, Lechat in view of Fowler discloses: A method, wherein the step of applying the direct affine transform (Lechat, Column 4, lines 5 to 6) is adapted to transform an intermediate point into an output transformed point in the output triangle (Lechat, Column 4, lines 7 to 13, "A triangle is a set of points"), and to determine, for said intermediate point, a contribution to output intensity values of pixels (Lechat, Column 9, lines 35 to 36) surrounding said output transformed point on the basis of the intermediate intensity value. (Lechat, Column 9, lines 34 to 35).

6. As per claim 7, Lechat in view of Fowler discloses: A method, further comprising a step of dividing the output triangle into two sub-triangles (Lechat, Column 3, lines 60 to 64) before the step of applying the direct affine transform. (Lechat, Column 4, lines 4 to 6).

7. As per claim 9, arguments used to reject 1 are analogous to arguments used to reject claim 9.

8. As per claim 10, arguments used to reject 9 are analogous to arguments used to reject claim 10.

9. As per claim 11, Lechat in view of Fowler discloses: A computer program product comprising machine readable media storing executable code for implementing, the method as claimed in claim 1. (Fowler, Column 7, lines 55 to 60).

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10. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lechat et al (U.S Patent 6999629 B1) hereinafter referred as Lechat, in view of Fowler et al (U.S Patent 6339428 B1) hereinafter referred as Fowler, and further in view of Zandi et al (U.S Patent 6219458 B1) hereinafter referred as Zandi.

11. As per claim 4, Lechat in view of Fowler discloses: A method as claimed in claim 2
Lechat in view of Fowler doesn't disclose: wherein the filtering operation comprises applying sequentially a first mono-dimensional finite impulse response filter in a horizontal direction and a second mono-dimensional finite impulse response filter in a vertical direction.
Zandi discloses: applying sequentially a first mono-dimensional (Zandi, Column 6, line 39) finite impulse response filter(Zandi, Column 5, line 66) in a horizontal direction(Zandi, Column 6, line 39) and a second mono-dimensional finite impulse response filter in a vertical direction(Zandi, Column 6, lines 39 and 40)

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement the teachings of Zandi into Lechat in view of Fowler since Lechat in view of Fowler did not suggest the finite impulse response filter, and Zandi suggests the beneficial use of the finite impulse response filter such for efficient filtering.

12. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lechat et al (U.S Patent 6999629 B1) hereinafter referred as Lechat, in view of Fowler et al (U.S Patent 6339428 B1) hereinafter referred as Fowler, and further in view of Mochizuki et al (U.S Patent 5903273) hereinafter referred as Mochizuki.

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13. As per claim 6, Lechat in view of Fowler discloses: A method as claimed in claim 1. Lechat in view of Fowler doesn't disclose: further comprising a step of determining lengths of the intermediate rectangle triangle opposite to the hypotenuse which are equal to a power of 2 greater than the length of corresponding edges the output triangle. However, Mochizuki discloses: further comprising a step of determining lengths of the intermediate rectangle triangle opposite to the hypotenuse which are equal to a power of 2 greater than the length of corresponding edges the output triangle. (Mochizuki, Column 15, lines 53 to 55). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement the teachings of Mochizuki into Lechat in view of Fowler in since Lechat in view of Fowler did not suggest the size limitation, and Mochizuki suggests the beneficial use of the size limitation such for more speed when computing.

14. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lechat et al (U.S. Patent 6999629 B1) hereinafter referred as Lechat in view of Fowler et al (U.S. Patent 6339428 B1) hereinafter referred as Fowler, and further in view of Koen Meinds (Resample Hardware for 3D Graphics) hereinafter referred as Meinds.

15. As per claim 8: Lechat in view of Fowler discloses: A method as claimed in claim 1. Lechat in view of Fowler doesn't disclose: wherein: the step of applying the direct affine transform is adapted to determine an output point and a corresponding output surface in the output triangle from an intermediate point and a corresponding intermediate unitary surface to determine a pixel with integer coordinates belonging to the output surface, and to determine an

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output vector defined by the output point and the pixel with integer coordinates; and the step of applying the inverse affine transform is adapted to determine an input transformed point in the input triangle from the intermediate point and the output vector, and to filter the input intensity values of texels surrounding said input transformed point so as to derive an output intensity value of the pixel with integer coordinates. However, Meinds discloses: wherein: the step of applying the direct affine transform is adapted to determine an output point (Meinds, page 19, Section 2.2, lines 1 to 3) and a corresponding output surface in the output triangle from an intermediate point (Meinds, page 19, Section 2.2, lines 7 to 8)and a corresponding intermediate unitary surface to determine a pixel with integer coordinates belonging to the output surface (Meinds, page 19, Section 2.1, line 9 “(U_t, V_t) is the texture coordinate....”), and to determine an output vector defined by the output point and the pixel with integer coordinates; (Meinds, page 19, Section 2.2, Figure 3)

and the step of applying the inverse affine transform is adapted to determine an input transformed point in the input triangle from the intermediate point Meinds, page 19, Section 2.1, lines 4 to 5, “With inverse texture mapping...”) and the output vector(Meinds, page 19, Section 2.1, Figure 1) , and to filter the input intensity values of texels surrounding said input transformed point so as to derive an output intensity value of the pixel with integer coordinates. (Meinds, page 19, Figure 2, and Section 2.1, lines 12 to 18, "Rasterization of the polygon.....") Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement the teachings of Meinds into Lechat in view of Fowler in since Lechat in view of Fowler did not suggest the details of determining of the output point, and the pixel ,

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and Meinds suggests the beneficial use of the details of determining of the output point, and the pixel such for a faster filtering process .

Response to Arguments

16. In response to the office action, the applicant provided the abstract in a separate sheet. In view of this amendment, the objection to the abstract has been withdrawn.

17. Applicant's arguments directed to claims 1, 3-11 have been fully considered but they are not persuasive.

18. In response to the office action, the applicant canceled the claim 11. In view of the amendment to the claims, the rejection of claim 11 under U.S.C. § 101 has been withdrawn.

19. In response to applicants argument for claim 1, applicant argues that the prior art doesn't disclose:" "determine output intensity values of pixels on the basis of the intermediate intensity values ", This argument is not persuasive because Lechat clearly stated that: "... carrying out the optimizations of luminance, chrominance and positions on each mesh level; determining a luminance deviation, for each patch of said hierarchical mesh, between the image to be encoded and an interpolated image obtained on the peaks of the nested mesh..."(see, Lechat, Column 9, lines 24 to 37).

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20. In response to applicants argument for claim 1, applicant argues that the prior art doesn't disclose :'" determine, for said intermediate point, an intermediate intensity value based on a filtering operation of texels surrounding the input transformed point ", This argument is not persuasive because Fowler clearly stated that: "...The point in the texture space defined by the UV coordinates determined by the interpolation is then typically used to perform a weighted average of the color of the texels, or individual texture components, surrounding the particular point in UV space. The weighted average of the surrounding texel colors is then used to determine the color for the particular pixel in the video graphics primitive. Various numbers of texels may be included in the determination of the color for the particular pixel, and the weighted average performed using these texels may be system dependent. In one embodiment, bilinear filtering is used to determine the pixel color value by determining the weighted average of the closest four texels to the point in UV space. However, other forms of filtering may use a much large number of texels..." (see, Fowler, Column 3, lines 13 to 26).

Conclusion

21. Applicants amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the

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THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ABDERRAHIM MEROUAN whose telephone number is (571)270-5254.

The examiner can normally be reached on Monday to Friday 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Xiao Wu can be reached on (571) 272-7761. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Abderrahim Merouan/

Examiner, Art Unit 2628

/XIAO M. WU/

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Supervisory Patent Examiner, Art Unit 2628